To sum up, therefore, we have in this patient an example of a tuberculous infection acquired through the ingestion of the organisms. These organisms reached the abdominal glands without leaving any apparent lesion of the intestinal mucosa. By rupture of these glands into the peritoneal cavity a tuberculous peritonitis was produced. This rupture may be related to the fall and subsequent abortion. Invasion of the venous tributaries of the inferior vena cava led to a widespread miliary tuberculosis. In the production of the post-mortem picture the points to be considered are—(1) the influence of pregnancy on the patient's resistance to the disease, (2) the massive dose of organisms disseminated by the blood and throughout the peritoneal cavity, and (3) a probable state of hypersensitivity to the proteins of the tubercle bacillus.

From the clinical side the points most worthy of note are—(1) the differential diagnosis of long-continued fever, (2) the importance of a white-cell count in such conditions, (3) the possibility of a negative X-ray picture in suspected tuberculosis of the lungs, and (4) once again the importance of pregnancy in the evolution of tuberculosis.

J. H. B.

The Pulse in Chinese Medicine

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The medical literature of China is very voluminous, and dates from the most remote periods. It is claimed that some of the books were written as far back as 3000 B.C., but this seems doubtful, as Chinese writing is said not to have been invented until 2698 B.C. Soon after this date it is said that Huang ti compiled the Nei ching, which is thought to be the oldest medical work known. This work is based largely on legend, but it contains a number of passages which present an astonishing amount of physiological knowledge on the circulation of the blood. Indeed, certain of the passages on this subject suggest that Harvey's epoch-making discovery of the circulation of the blood had been anticipated in China at this early period. The following passages clearly support this view :—

> "All the blood is under the control of the heart."
>
> "The blood flows continuously in a circle and never stops."
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> "The blood cannot but flow continuously like the current of a river, or the sun and moon in their orbits. It may be compared to a circle without beginning or end."

After reading these lines it is not surprising to find that the Chinese paid a good deal of attention to the pulse in sickness, and so much importance was given to it that a regular sect of physicians arose who based their practice on it alone. They were, it is true, only the lowest grade of physicians, as Sun Szu-mo, an early

physician, informs us that "the skilful doctor knows what is wrong by observing alone, the middling doctor by listening, and the inferior doctor by feeling the pulse."

The first really important work on the pulse, of which there are 156 known to exist, appears to have been written by a court physician named Wang Shu-ho, who lived about A.D. 280, during the Western China dynasty. This work consists of ten volumes, and is known as the Mo Ching, or Pulse Classic.

This is the period in Chinese history that medicine reached its zenith. Its fame extended to Annam and Siam, to Korea and Japan, and it influenced medicine in these countries to such a degree that it eventually replaced the indigenous practice. China at this period was to her neighbouring countries what Greece later became to Europe: the source of all morals and culture, and directly and indirectly Japan and Siam received their first germs of science, religion, and arts from her.

The description of the pulse given in the Mo Ching is extremely complicated, and its practice constituted a most detailed procedure amounting almost to a solemn ritual. The examination was made upon both right and left wrists, the physican using his right hand for the left pulse, and his left hand for the right pulse. The middle finger was first laid on the artery at the end of the radius, then adding the index and ring fingers whilst the thumb rested on the back of the carpus. It was taught that the best time for taking the pulse was at sunrise. It was also advised that the physican should keep cool and collected, first noting if his own breathing was in order. This was really an important point, as the physican's rate of breathing was used to count the pulse-beats. One inspiration and one expiration constituted one cycle of respiration, and four beats of the pulse to each cycle was taken as the normal.

It was also taught that the pulse extended for one and nine-tenth inches, and that it was divided into three parts. Each of these three parts was said to have two different and distinct pulses, one internal and one external, making twelve pulses in all, six on the right and six on the left side. Each of these twelve pulses in turn corresponded to twelve definite internal organs, the normal or abnormal conditions of which were indicated in the behaviour of the pulse. According to Wang Shu-ho, the first part of the right-hand pulse revealed the condition of the lungs and large intestine, while the same portion of the left pulse revealed the conditions of the heart and small intestine. The middle of the right pulse revealed the condition of the spleen and stomach, and the left pulse the liver and gall-bladder. The last and distal part of the right pulse was concerned with the genital organs, and the left with the kidneys and urinary bladder.

In the various treatises on the pulse, opinions differed widely concerning the supposed relationship with particular organs, so that the Chinese student must have had great difficulty in making up his mind as to which theory to accept. One point, however, all these theories possessed in common, and that was the great emphasis which was laid on variations in the pulse. Not only were the rate,

character, rhythm, volume, tension, etc., minutely observed, but the age, sex, temperament, constitution, weight, and growth of the patient, as well as the time of day, season of the year, influence of the stars, all were considered. These fine distinctions, however, apparently only existed on paper, for there does not appear ever to have been a really satisfactory demonstration of them on the living patient.

But of the many types of pulse described, there were four principal varieties :

(1) A superficial or light-flowing pulse, like a piece of wood floating on water.

(2) A deep or deeply impressed pulse, like a stone thrown into water.

(3) A slow pulse, with three beats to one cycle of respiration.

(4) A quick pulse, with six beats to the cycle of one respiration.

A host of subsidiary varieties of pulse were also said to exist. There were the slippery, small, empty, full, long, short, thready, tense, tardy, wiry, soft, feeble, running, irregular pulses, and many others.

Each of these varieties of pulse, either singly or in combination, was believed to reveal a distinct disease. The superficial pulse belonging to a young male adult pointed to complaints contracted from without, through the five influences : wind, cold, dampness, heat, dryness. If the pulse was found to be superficial and strong, it indicated wind and heat ; if superficial and weak, it meant a deficiency of blood ; if it was slow, it meant external chills ; and if quick, it meant wind and fever ; while if it was found to be tardy, rheumatism was the diagnosis.

If a deep pulse was found in a young adult female, it indicated disease associated with the seven passions : joy, anger, anxiety, worry, grief, fear, and shock. If the pulse was deep and slow, it meant weakness and cold ; if it was found to be deep and quick, it meant latent heat. If, on the other hand, it was found to be deep and tense, it meant colic due to chills ; if deep and slippery, it indicated indigestion.

Chinese anatomy described the internal organs in two groups :—

(1) The five "tsangs" or solid organs, which consisted of the heart, liver, spleen, lungs, and kidneys.

(2) The six " fus," or hollow organs, which were the gall-bladder, stomach, large intestine, small intestine, urinary bladder, and the genital tract.

The slow pulse was said to indicate the solid organs, and the quick pulse the hollow ones. When the slow pulse was strong, it indicated pain, but when weak it indicated debility. The quick strong pulse indicated internal fire (i.e., inflammation), while a quick and weak pulse indicated abscess formation.

The pulse was also used to assist in making a prognosis, and early Chinese physicians claimed that, in cases of apoplexy, the absence of immediate danger was indicated by a superficial and slow pulse, but that in cases where death was imminent, the pulse became firm, rapid, and large. In typhoid fever the pulse was said to be superficial, full, and overflowing, when no immediate danger was near, but that it became thready, small, and soft when a patient was in danger of death. In malaria fever a taut pulse was held to be a favourable sign, but if

it became large, scattered, and irregular, the outlook was unfavourable. In cases of diarrhœa, without immediate danger, the pulse was deep, small, slippery, and feeble; but that it became strong, large, superficial, and quick when the outlook became serious and death threatened. A good sign in cases of vomiting was said to be a superficial and slippery pulse, but if it became deep, quick, fine, and small, it indicated bleeding in the intestine and that the case was beyond hope. It was also said that one need not be alarmed to find an irregular pulse in cholera, and that it was only when this sign was found associated with a curled tongue and shrivelled testicles that recovery was improbable. It was also said that the pulse became weak and quick in wasting diseases, and to become thin and small when death was certain.

A good sign in a disease closely resembling the signs and symptoms of diabetes, was a large and quick pulse, but if it was slender, thready, short, and small, the outlook was considered to be hopeless.

Nine kinds of pain in the abdomen were described, and each was associated with a specific form of pulse. A slender pulse indicated a quick recovery from pain, while a large full pulse denoted a slow convalesence.

A favourable outlook in jaundice was a full, overflowing, and quick pulse, but a superficial, thready, small pulse was a bad omen. In dropsical swellings the pulse was said to be superficial, large, and full when no immediate danger was present; but if it became deep and slender, death was near.

In cases where there was an accumulation of humours in the system, no danger existed if the pulse was strong and full; but if deep and slender, the case was serious. In diseases caused by evil spirits, the pulse was said to vary in both wrists. But when such obnoxious influences existed, and the belly became swollen, a tense and fine pulse was held to be hopeful, but a large superficial pulse had a serious outlook.

Several varieties of pulse were described which were said to indicate impending death. If it resembled the pecking of a bird or of water dripping from a cracked roof, death was expected within four days of its onset. If the pulse was like the snapping of a cord, or like the flipping of a finger against a stone, in cases of kidney disease, death was due in four days. In diseases of the liver, a pulse like the string of a new bow indicated death within eight days. If the pulse resembled the rapid rolling of peas, death might be expected within twenty-four hours.

An important point when making observations on the pulse was to make due allowance for the season of the year, and for the constitution and sex of the patient. In spring the pulse was tremulous, in summer it was full and overflowing, in autumn it was elastic, and in winter it became "deep like a stone thrown into water."

It was also taught that the pulse of a thin person was generally more superficial and full than that of a fat person: that five beats to one cycle of respiration was

normal in a hot-tempered person; that in the aged the pulse was mostly empty, and in young people it was large, and in infants rapid.

Differentiation was also made between the pulses of the sexes. The pulse on the left hand of males should be large to correspond with the male-sex principle, but in females it should be the opposite character, the female-sex principle predominating on the right side of the body.

Marvellous claims were made for the diagnostic value of the pulse. A well-trained physician was said to be able to tell if a woman was pregnant, and even to predict the sex and development of the fœtus. For example, in cases where menstruation had ceased from no apparent cause, a slippery pulse would indicate pregnancy; if it were, in addition, rapid and scattered, it showed that the pregnancy was one of three months' duration, but if it was rapid and not scattered it indicated a pregnancy of five months' duration. If the pulse of the left wrist was rapid, a son could be expected; but if a right pulse was rapid, a daughter would surely be born. Twins could be foretold by an overflowing pulse in both wrists, and triplets if both wrists were smooth and regular.

Beliefs such as these were held by Chinese physicians right up to recent times, and, indeed, native physicians in outlying portions of China still believe them, and base their practice on them. It is not surprising then to find that physicians in China did not receive recognition as being men of any great standing in the community, and were assigned to the lowest grade of society. This fact is clear from a study of the T'ang Annals, in which it is stated: "Mathematicians, surveyors, fortune-tellers, physiognomists, physicians, and magicians were charlatans, and the sages did not regard them as educated." Chu Hsi, the famous commentator on the Confucian classics, supports this view, and states: "Sun Szu-mo was a noted doctor of literature of the T'ang dynasty, but as he practised healing as a profession he was relegated to the class of artisans."

CASE REPORTS

THREE RECENT CASES OF GASTRIC ULCER TREATED BY GASTRECTOMY

By P. T. CRYMBLE, M.B., F.R.C.S.ENG.,
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1. LABOURER, AGED 33.

History.—Double pneumonia four years ago, and pneumonia in August, 1937. Epigastric pain for the last three years, relieved by alkalies. Two courses of medical treatment had no permanent effect. Vomiting.

Examination.—X-ray showed a mid-gastric hour-glass contraction, with a large Haudeks niche.